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ABSTRACT

Research in the fields of education, linguistics, psychology, sociology, philosophy, politics, anthropology, rhetoric, and computer science has yielded a large body of knowledge about how language is produced and used in different types of communication, how language systems affect conceptual frameworks, and how language competence contributes to personal power, but the application of this research in education has been very limited. Language is the primary means for understanding and communicating ideas and for creating new knowledge. If schools can articulate a broad understanding of language and have teachers of all subjects guide students in organizing, synthesizing, and expressing their thoughts clearly through diverse languages, a large step will be taken toward improving students' thinking and communicating skills. A multidisciplinary approach to language effects and uses should yield greater understanding of life's choices. Class discussion provides a natural opportunity for probing the meaning of language. Through self-conscious attention to the flow of a discussion, appropriateness of questions and answers, extension and development of ideas, students learn to evaluate alternative perceptions of reality and make judgments about which perceptions are most logical and consistent. Students also need to be evaluated more frequently in ways that require language use to organize, relate, and draw conclusions from the information taught, and classes involving more written assignments and thoughtful probing of new concepts should be small. (MSE)

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perceive its capacity to either free or constrain human thought, to enlarge or restrict reality, and to clarify or confuse experience. Power resides in language. By naming and describing both experience and external reality, humans exert control over the subjective and objective worlds. This power depends in part on the understanding and ability of those who communicate and in addition, some argue, it dwells in the words themselves. Thus teaching children how to use language is a task of infinite complexity and importance.

Models of Reality

Psychologists frequently point out that people create representations or models of the world which then govern behavior, perceptions, and choices (Bandler and Grinder, pp. 7-8). Language forms the basis for these models.

Two well-known experiments illustrate the ways in which language, and labels in particular, can influence representations of reality and significantly alter memory and approaches to problem solving. In one psychological study, subjects were shown drawings, each accompanied by one of two possible labels. When asked to reconstruct one of the drawings, subjects distorted the remembered object according to the label they had seen with it. For example, the configuration O—O was labelled either *eyeglasses* or *barbells*. Those who saw the label *eyeglasses*, tended to reconstruct the drawing as ○—○, while those who saw the label *barbells* produced a different drawing: O—O (Clark and Clark, 1977, p. 556).

In a classic experiment with a box of tacks, a candle, and matches, Karl Duncker showed that labelling affected the way the subjects solved a postulated problem, which was to fix the candle to a wall in an upright position so it wouldn't drip. Those who saw the box as only a "box of tacks," thereby limiting its function, had great difficulty in solving the problem. Those who saw the box as a generic "box" (capable of being used in a variety of functions) solved the problem rapidly by tacking it to the wall as a support for the candle.

What do these experiments suggest for educators? They reveal conditions under which our capacity to approximate reality or to be innovative can be limited when we are unaware of the effects of language on our thinking. These effects are cross-disciplinary and need to be explicitly described, as appropriate, in all subject areas. Students must become self-conscious in their use of language if they are to be its masters. Rather than blindly accepting the ways in which knowledge has been organized and categorized, students should be made aware of the effects of the accepted categories when compared to alternative schema that have been rejected.

This is not to suggest that language is primarily a constraint on our thinking processes. Depending upon its use, language can also be a tool for coping effectively with problems. The nature of language is essentially paradoxical — it is, as Leonard Bloomfield has said, both "rule governed and . . . creative."

Linguistic Relativity

In the 1950s, anthropologist and linguist Benjamin Lee Whorf advanced the claim that language significantly influences the way people view and organize the world around them. His hypothesis presents language as highly deterministic of our thought processes:

> We dissect nature along lines laid down by our native languages . . . . the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds — and this means largely by the linguistic systems in our minds. We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way — an agreement that holds through our speech communication and is codified in the patterns of our language. The agreement is, of course, an implicit and unstated one, but its terms are absolutely obligatory; we cannot talk at all except by subscribing to an organization and classification of data which the agreement decrees. (1956, pp. 213-14.)

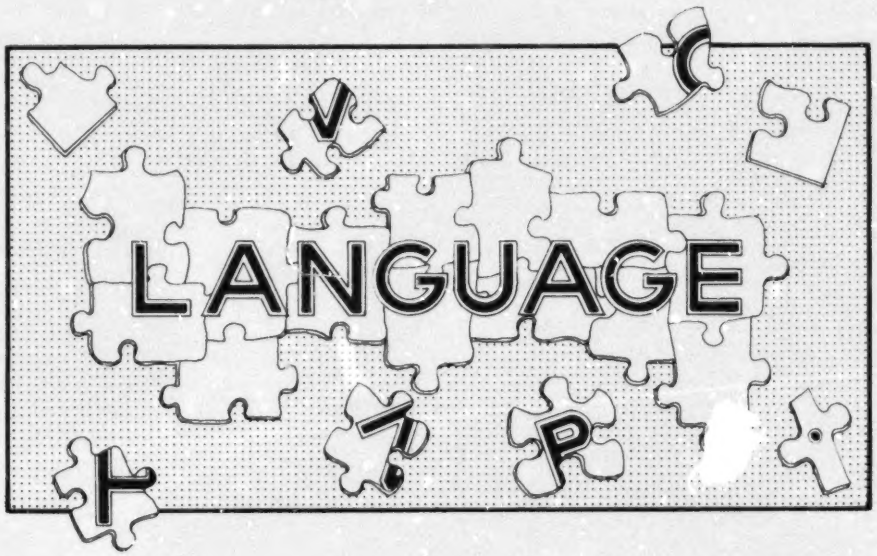
Currently, there is a renewed interest in the issue of relativism, but this interest moves beyond Whorf's notions to an exploration of the metaphorical and political nature of language. Michel Foucault, a French historian, philosopher, and linguist, argues that in "their common use of language, persons enter a system that already contains the objects one can speak about and the relationships one can invoke." He sees language or discursive practices as determining the range of objects that can be identified, defining knowledge and those who are the repositories of knowledge, and establishing norms for developing conceptualizations. Foucault might then reverse the commonly accepted idea that persons make statements and propose that statements make persons (Shapiro 1981, pp. 127-141).

American linguists George Lakoff and Mark Johnson have found that most of our ordinary

conceptual system is metaphorical in nature and that metaphors we are largely unaware of structure how we perceive, how we think, and what we do. As an example, they cite our view of argument as an analog of war. This perception is revealed in our everyday language:

Your claims are *indefensible.*

He *attacked every weak point* in my argument.



I've never *won* an argument with her.

If you use that *strategy,* he'll *demolish* you.

Lakoff and Johnson claim that we act according to the way we conceive of things. Thus our acceptance of the metaphor of argument as war governs the way we behave when arguing. Moreover, our unconscious acceptance of the metaphor prevents us from seeing other perspectives on argument — for instance a perspective that envisions argument as a cooperative activity, as a dance, perhaps, instead of a battle (1980, pp. 1-13).

In *A Poetic for Sociology,* Richard Brown points out that we can either use metaphors or be used by them:

> Awareness of our use of metaphor provides an escape hatch from the prison house of language, or at least lets us know we are confined . . . . To unmask metaphors that have become myths requires negative insight and circumspection; to create new metaphors is a leap of the imagination. It not only demands that we say "No" to the organization of experience as it is given to us in preordained categories; it also requires us to rearrange cognition into new forms and associations (Brown, p. 84).

The evidence that we may have less freedom than we believe in our acquisition and generation of ideas and our view of the social world raises special concerns about the goals and methods of delivering education. If we are truly intent on educating students to think and express themselves intelligently, we must be aware on several levels of how language affects thought and perception.

Moreover, we should be exploring how this linguistic awareness can be used to evaluate the assumptions and conceptual categories of our cultural environment so that we can make judgments about what needs to be preserved and what needs to be changed.

C.A. Bowers, professor of education at the University of Oregon, argues that schools should be primarily concerned with developing students' "communicative competence" and that such competence entails "negotiating meanings and purposes rather than simply accepting the social realities defined by others." Communicative competence requires, according to Bowers, more than individual facility in speaking and writing. It requires "a knowledge of relevant issues and the conceptual frameworks that shape our way of thinking" (1984, pp. 7-8).

In the classroom, teachers introduce new topics to students by giving them both words for naming the related elements needed

for explanation and conceptual frameworks for assimilating the new information into what is already known. The teacher's natural attitude is frequentiy communicated in this process as a taken-for-granted assumption, an occurrence that neither teacher nor student is fully conscious of.

For example, in teaching the concepts of freedom and equality, the teacher's natural attitude could vary from perceiving these qualities as inherent in a student's state of being to viewing them as ideals to be worked toward.

Language is seen as only one part of the curriculum and even there it is divided into its most quantifiable parts . . . . The result is that we have a segmented view of language which limits our understanding of its uses and effects.

Whatever attitude is taken is likely to be accepted without question if no alternative views are suggested. Thus teachers as well as students need to more fully comprehend the language milieu in which they work. By being sensitive to the shaping consequences of their language choices, teachers can better determine when they need to offer alternative explanations or when to give students elaborate rather than simplified codes for understanding a concept.

Visible evidence of the effect of becoming aware of taken-for-granted assumptions and applying different labels to familiar patterns of behavior is furnished in the issue of sexism. Bowers argues that before the codes underlying sexist beliefs were made explicit, thought and social behavior in this domain had been largely controlled at an unconscious level.

> Sexist attitudes, like our current view of individualism, were experienced as part of the natural order. People were not aware of being sexists, nor were they aware that the differential treatment between sexes was based on an historically and culturally rooted code that dictated the patterns of social interaction (1984, p. 24).

Several inferences for policy and practice can be drawn from this argument. First, teachers must have a comprehensive understanding of the subjects they teach, including the underlying principles upon which these subjects rest. Otherwise, it will be difficult to avoid using language unconsciously to bind students' minds to an incompletely examined set of assumptions. Bowers suggests that the unbinding of students' minds cannot occur if teachers are overly concerned with such matters as more efficient classroom management techniques, or rely heavily on learning packages for instruction. Second, teacher training institutions cannot remain professional schools that are separate from those institutions serving as the traditional sources of a liberal education. Teachers need to be culturally as well as pedagogically literate. And third, educational leaders need to understand and communicate, repeatedly, the connection between language and perception to help clarify what our educational priorities should be (Bowers 1984, pp. 26-28).

Thinking and Writing

Using a general understanding of the uses and effects of language on our patterns of thinking, let us move to a consideration of the research in writing and oral communication that engenders more specific implications for the development of students' linguistic skills.

The perceived decline in students' writing abilities has spawned several illuminating studies of the process of writing. Monica R. Weis links current brain research to the composing process and concludes that "the writing process is not linear but recursive." Sandra Perl goes further in defining the recursive features of writing. They include rereading, returning to the notion of the topic (often through the use of key words), and moving back to feelings or nonverbalized impressions, which she defines as the "felt sense."

What recursiveness means is that the writing process does not move in smooth progression from prewriting and invention (thinking about the topic and perhaps talking about it in preparation for writing) to writing to revision. Writing is itself an organic process where revision, discovery, and development intertwine to yield a product often different from that originally intended.

As Perl explains,

> In writing, meaning cannot be discovered the way we discover an object on an archeological dig. In writing, meaning is crafted and constructed . . . [in the moment of discovery] we see in our words a further structuring of the sense we began with, and we recognize that in those words we have discovered something new about ourselves and our topic (Hays et al., p. 48).

Perl's words are not only applicable to high school and college students; they describe us all. Many researchers mistakenly feel that their discoveries are complete before they begin to write their reports. The writing process is envisioned as simply the task of writing down systematically what is already known. Ray Hyman, professor of psychology at the University of Oregon disagrees:

> The evidence seems to indicate that thought reaches its highest form of precision and objectivity when it is forced into highly formalized symbols and structures. Quite frequently the investigator only fully realizes the implications of his work when he finally sits down at the typewriter and attempts to rearrange his thoughts into the standardized and logical format required by the journal article (1964, p. 106).

Hyman points out that writing for publication helps the scientist to achieve what Piaget terms "decentering" — moving away from a personal view of an investigation towards an objective, detached perspective. In addition, Hyman continues, "the necessity of translating one's thinking into more conventional terminology often separates the connotations of one's own mental imagery from those actually implied by the relations among the data."

If students, and scholars, expect discovery and further thought formulation to occur during the writing process, the potential in language for synthetic creativity can more readily be achieved. Beyond expectation, however, writers need to be comfortable with a degree of mystery in the composing process and to be simultaneously willing to rearrange and consciously manipulate the information they have stored. As Marilyn Goldberg states, students need

> to focus on the most ordinary of their skills, the skills of using language and of thinking. What we want them to understand are their own most intimate thoughts and their most intuitively regular mental operations, qualities that they know so well that the conscious effort to recognize them is extremely demanding (Hays et al., p. 36).

Many high schools and colleges have concentrated on grammar and the mechanics of writing as a means to improve students' compositions. A literature review by John Black at Yale University, "Psycholinguistic Processes in Writing" (1980), reveals, however, that the major writing problems of students today are not found in errors of usage, grammar, or punctuation. Rather the students suffer from the inability to draw connections and relationships from one sentence to another or to generate examples, anecdotes, and details to support generalizations.

The implication, then, is that students often lack insight into the *meaning* of language even though they may possess an adequate understanding of its technical requirements. Of course, as illustrated in the previous section, it is the meaning of language that is most difficult to teach. As Boyer indicates in his report on the Carnegie Foundation study, a real commitment to improving students' abilities to use language will require more time spent in careful analysis of student writing, more frequent writing assignments, and smaller classes. In this way, teachers can better encourage students to go beyond the mastery of convention and precision in language use to a fuller understanding of the specific meanings being conveyed.

Language and Cognitive Growth

In his book, Boyer places language at the center of the curriculum. He also recognizes another aspect of the power of language with significance for the disadvantaged. Language skill facilitates clear thinking and discovery, but lack of such skill can severely limit opportunities, especially for those who are culturally and socially deprived. To return to the idea of the individual's representations of reality, it is one thing to impose a limited representation on oneself, a limitation that can be removed by a change in perception, it is quite another to lack the experience for forming an enriched model.

In her study of *why* and *how* questions, Marion Blank explores the effects of children's linguistic environments on their cognitive growth. These questions, according to Blank, are one example of a child being dependent on the language for discovering meanings. *How* and *why* questions can be interpreted in a number of different ways and can be responded to with equal variation. For instance, to use Blank's example, there are several possible answers to the question, "Why did he try to carry three cups at once?" Some of the reasonable responses could include,

- Because he was trying to impress his girlfriend. (motives)
- Because he had too many trips to make. (justification)
- Because he has a very good sense of balance. (attributes)

With this array of possibilities, the child can learn appropriate *why* questions and answers only by asking such questions as early and as often as possible. Blank

states, "Only by testing the listener's reaction to his questions, and by observing reactions to his answers, can the child gradually hone in on the varieties of explanations that his language expresses" (de Villiers and de Villiers, pp. 223-24).

Often children confuse *why* questions with *when* or *where* questions, which are less ambiguous and allow a much narrower range of response. In order to understand suitable ways of responding to *why* questions children need either to offer answers and watch their audiences react or to listen to complex dialogue between other persons. Blank speculates that the lack of opportunity for this latter activity in socially impoverished environments may explain why certain children do so poorly when confronted with *why* questions. They have not had any experience with sufficiently sophisticated conversations. Thus *why* questions may provide one example of how language can serve cognitive growth. "Without adequate linguistic experience," Blank postulates, "the child would be incapable of fomulating and understanding explanations."

If language competence does serve, as well as benefit from, cognitive growth, it is imperative that schools perceive the development of language skills as a primary purpose of education. Particularly for those children whose social environments are sterile, schools need to provide the kind of linguistic stimulation and sophistication that will promote cognitive growth. Such stimulation and sophistication is found in the careful articulation of questions and answers that go beyond surface facts and rote knowledge. In place of easily quantified objective tests, such students require exposure to examinations that explore underlying concepts and meaning. When examinations of this type are given, they are generally reserved for "accelerated" students, thus further impoverishing the opportunities for those students whose environments are already limited.

The Perennial Rift

With the clamor for school improvement, including more emphasis on writing and critical thinking skills, why are the findings of the research discussed here largely unapplied? One answer is, of course, that not enough educators, or even educators of educators, are knowledgeable about the connections between language, thought, and culture. It is a field of study more frequently reserved for psychologists, linguists, and anthropologists.

Other answers are suggested by the work of three researchers in the field of education — Philip Cusick, Linda McNeil, and Walter Doyle. In his study of three metropolitan high schools, Cusick found that teachers had to compete with each other to fill their classes. As a result, he reported, "It can and did happen in the schools I studied that there were some good and demanding teachers who did not have enough students to teach" (1983, p. 76). The competition, in fact, forced teachers to emphasize maintaining good relationships with students rather than encouraging a true interest in and knowledge of the subject matter being taught. Beyond this problem, Cusick found that secondary teachers were free to develop idiosyncratic approaches to classes and the curriculum, that there was significant lack of coordination and guidance within departments and across the curriculum. He observed, "No principal of those schools ever talked about the school philosophy or beliefs or adherence to some common goals; the schools were always presented as an aggregate of discrete and disparate activities and events" (p. 95).

The concept of language advanced in this article, as the basic outcome for learning in all subjects, requires shared understandings and further training for teachers, especially for those in disciplines that often fail to fully appreciate the role of language, such as mathematics and the sciences. Moreover, this concept assumes a commitment to academic excellence. If administrators reward teachers who "get along well with kids" because they have fewer discipline problems and participate in all the visible social activities of the school, a strong curriculum that focuses on thinking and expression is not likely to develop.

Admittedly, Cusick's findings do not apply to all schools since he was working in urban settings. Linda McNeil's study of students' access to knowledge content and knowledge forms at the secondary level expands the realm of study to suburban schools. McNeil discerned that an emphasis on teacher autonomy and order can work against basic educative purposes. She states,

> Even where principals appear to be most removed from the autonomy of classrooms, their policies of deferring all curriculum to teachers or of emphasizing order and control rather than teaching and learning may have greater effect on students' access to knowledge than their formal curriculum directives and powers of oversight (1982, p. 245).

The type of instruction that allows for careful attention to the use of language in both written and oral expression and to the metaphors and conceptual frameworks that are often adopted unconsciously requires that teachers take risks. Without administrative support, they are unlikely to engage in activities that may result in more learning but demand greater time and energy and may involve conflict. Often the exploration of cultural assumptions and alternative interpretations of concepts creates controversy and classroom management problems. Such discussions are less predictable than a lecture followed by seatwork. Moreover, the elevation of students' knowledge can be threatening to teachers who feel they may not be able to answer unanticipated questions. To maintain control and authority, McNeil found, it was also common for teachers to limit the content of a class to much narrower boundaries than their own knowledge encompassed (p. iv).

In his research on student motivation and academic work, Walter Doyle postulates that because teachers are required to give grades that are perceived to be fair and can be computed quickly, they often don't engage in learning activities that cannot be easily quantified or that fail to contribute directly to the course grade. Then too, students question why they should do work that does not affect their grades. Moreover, assignments that evaluate students' use of language and thinking processes are difficult to assess and create a much larger workload for the teacher. Thus, Doyle concludes, "the cognitive tasks with the greatest potential for improving the quality of work are the hardest to instill." (1983, p. 198).

Conclusion

Language is the primary means for understanding and communicating ideas and for creating new knowledge from what is already known. It is also the essential product. The development of language competence is a lifelong process in which our ability to move beyond physical, social, and individual constraints depends in large part upon our awareness of the assumptions underlying our representations of reality. If we recognize the power inherent in language, the consequences of naming and organizing into categories our experience of the world, we can increase both the precision and the freedom with which we express ourselves.

Still, what are further implications for the classroom of what we know about the interplay of cognition and language? First, it seems clear that language and its uses are a crossdisciplinary concern of as much relevance to mathematics and physics, which use their own specialized idioms, as to English and foreign languages. In the pursuit of both art and science a standard language is needed to translate the internal, idiosyncratic representation of the creator into a conception that can be comprehended by society. Thus artists and scientists alike blend idiosyncratic and standard languages to generate a product. And in this blending and translating (which can be achieved through visual, musical, literary, or other media) the process of discovery continues to take place.

If schools can articulate a broad understanding of language and succeed in having teachers of all subjects guide students in organizing, synthesizing, and expressing their thoughts clearly through diverse languages, a large step will have been taken toward improving students' thinking and communicating skills. If representations of reality influence our behavior, perceptions, and choices, then our conception of the role of language will affect our linguistic practices and proclivities. A multidisciplinary approach to the uses and effects of language should yield greater understanding of what choices are available and why certain of these are more appropriate than others for solving a particular problem.

The goal of education, in its most fundamental sense, is to teach students about the connections between language and culture and patterns of consciousness, not just how to read and write.

Second, class discussion provides a natural opportunity for probing the meaning of language — the use of metaphor and the denotations and connotations of words are important to all learning, not just the study of literature and poetry. Through self-conscious attention to the flow of a discussion, appropriateness of questions and answers, extension and development of ideas, students can learn to evaluate alternative ways of perceiving reality and make judgments about which perceptions seem most logical and consistent. In fact, educators need to see carefully structured class discussions as an essential

part of providing an enriching environment for children whose home life excludes such opportunities.

Third, students need to be more frequently evaluated in ways that require the use of language to organize, relate, and draw conclusions from the information taught. The exclusive use of multiple choice tests and rote memorization of facts will promote neither clearer expression nor clearer thinking. These two eduational imperatives can only be accomplished through the dogged assignment and scrupulous review of written and oral work demonstrating knowledge of *why* and *how* in addition to *what, when,* or *where.*

Finally, the educative purposes emphasized here suggest that those classes involving greater numbers of written assignments and thoughtful probing of new concepts will need to be small. If administrators truly desire higher cognitive outcomes among their students, they will need to reallocate resources accordingly. In partial compensation, some classes requiring less supervision and less holistic evaluation could be enlarged. But such adjustments will require an agreement among administrators, teachers, parents, and students about the foremost goals of education.

Thus administrators need to build a unified sense of purpose within their schools and select teachers who are well-educated and sensitive to the importance of language and the theoretical underpinnings of their subjects. To help students perform at higher cognitive levels, administrators must exercise more than just adaptive management, they must guide all members of the school community to a more profound understanding of language and its power.

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Language and Perception: Implications for Education

by Wynn De Bevoise

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

When Ernest Boyer states, as he did in his recent book *High School: A Report on Secondary Education in America*, that language is "the most essential tool for learning," few are going to take issue with him. Educational critics and reformers have been conveying a similar message for decades along with an uncomplimentary assessment of the way in which American public schools have taught students to use language.

With all the surface genuflection to the altar of language, why haven't students become more fluent in and cognizant of its uses? Robert H. Mattson, director of the Center for Educational Policy and Management, suggests that one reason is a general failure to perceive language as the primary goal of education. "In fact," he explains, "language is seen as only one part of the curriculum and even there it is divided into its most quantifiable parts — grammar, reading comprehension, writing assignments. The result is that we have a segmented view of language which limits our understanding of its uses and effects."

Research in the fields of education, linguistics, psychology, sociology, philosophy, politics, anthropology, rhetoric, and computer science has yielded a hoard of knowledge about how language is produced and used in different types of communication, how language systems affect conceptual frameworks, and how language competence contributes to personal power. Yet the application of this research has been miserly at best. This article reviews the body of research on language and communication, attempts to explain why the research is not acted upon in most schools, and suggests implications for educational policy and management.

Language is here broadly defined to include thought, oral and written communication, and artificial as well as natural languages. By seeing language in its broadest applications, it is possible to

The idea for this article grew out of a series of discussions with Robert Mattson, the Center's director, about the importance of language in education. Under Mattson's guidance, the Center has adopted the view that developing students' language capability constitutes the primary purpose of education and it has used this concept as a basis for conceptualizing a research paradigm and agenda. The author wishes to thank Ray Hyman and C.A. Bowers for contributing valuable ideas and resources. Kenneth Duckworth and Meredith Gall also offered helpful suggestions.

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